WHAT IS CLAIMED IS:

1. A strained channel semiconductor device comprising:

an active area having a length delineated by two opposed termini and a width delineated by two opposed sides;

a channel in the active area between the sides thereof, wherein the active area and the channel comprise a residual lengthwise stress; and

a first deformation in one side of the active area for selectively enhancing or reducing the residual lengthwise stress in the channel by producing additional lengthwise tensile or compressive force in the active area.

2. The strained channel semiconductor device of Claim 1, wherein the selective enhancement or reduction of the residual lengthwise stress in the channel selectively affects carrier mobility therein.

3. The strained channel semiconductor device of Claim 1, wherein there is also residual widthwise compressive stress in the active area and the channel, and wherein the first deformation selectively enhances the residual widthwise stress in the channel by producing additional widthwise compressive force in the active area.

4. The strained channel semiconductor device of Claim 3, wherein the selective enhancement of the widthwise compressive stress in the channel retards diffusion into the channel of elements used in doping and siliciding the strained channel semiconductor device.

5. The strained channel semiconductor device of Claim 3, wherein a shape of the first deformation is selected to produce additional widthwise compressive stress in the active area and in the channel.

6. The strained channel semiconductor device of Claim 1, wherein a shape of the first deformation is selected to produce additional lengthwise tensile or compressive stress in the active area and in the channel.

7. The strained channel semiconductor device of Claim 1, wherein the first deformation is a depression in the one side of the active area and the additional lengthwise force is tensile.

8. The strained channel semiconductor device of Claim 1, wherein the first deformation is an outward protrusion of the one side of the active area and the additional lengthwise force is compressive.

9. The strained channel semiconductor device of Claim 1, further comprising a second deformation in the other side of the active area for selectively further enhancing or decreasing the lengthwise stress in the channel by producing additional lengthwise tensile or compressive force in the active area.

10. The strained channel semiconductor device of Claim 9, wherein both deformations are depressions in their respective sides and the additional lengthwise force in the active area is tensile.

11. The strained channel semiconductor device of Claim 9, wherein both deformations are protrusions of their respective sides and the additional lengthwise force in the active area is compressive.

12. The strained channel semiconductor device of Claim 1, further comprising a second deformation in the one side of the active area and being spaced lengthwise from the first deformation for selectively further enhancing the lengthwise tensile or compressive force in the active area by selectively producing additional lengthwise compressive or tensile force in the active area.

13. The strained channel semiconductor device of Claim 12, wherein the first and second deformations are depressions in the one side of the active area and delineate therebetween a third deformation that is a protrusion of the one side of the active area, the first and second deformations producing additional tensile force lengthwise of the channel, the third deformation producing additional compressive force lengthwise of the channel, and all of the deformations producing additional compressive force widthwise of the channel.

14. The strained channel semiconductor device of Claim 12, wherein the first and second deformations are protrusions of the one side of the active area and delineate therebetween a third deformation that is a depression in the one side of the active area, the first and second deformations producing additional compressive force lengthwise of the channel, the third deformation producing additional tensile force lengthwise of the channel, and all of the deformations producing additional compressive force widthwise of the channel.

15. The strained channel semiconductor device of Claim 12, further comprising third and fourth deformations in the other side of the active area that are selectively aligned or misaligned with the first and second deformations in the one side of the active area for further selectively producing tensile or compressive force lengthwise of the channel and for producing additional compressive force widthwise of the channel.

16. The strained channel semiconductor device of Claim 15, wherein the spacing between the first and second deformations and the spacing between the third and fourth deformations and the positions of the first and second deformations relative to the positions of the third and fourth deformations lengthwise of the channel are selected to produce selected stress in one or more selected locations of the channel.

17. A method of selectively enhancing or reducing carrier mobility in a strained channel semiconductor device, said method comprising:

forming an active area having a length delineated by two opposed termini and a width delineated by two opposed sides;

forming a channel in the active area between the sides thereof, wherein the active area and the channel comprise a residual lengthwise stress; and

forming a first deformation in one side of the active area to selectively enhance or reduce the lengthwise stress in the channel by producing additional lengthwise tensile or compressive force in the active area.

18. The method of Claim 17, wherein the active area and the channel comprise a residual widthwise compressive stress, and wherein the first deformation selectively enhances the widthwise stress in the channel by producing additional widthwise compressive force in the active area.

19. The method of Claim 18, wherein the selective enhancement of the widthwise compressive stress in the channel retards diffusion into the channel of elements used in doping and siliciding the strained channel semiconductor device.

20. The method of Claim 17, wherein the shape of the first deformation is selected to produce selected additional lengthwise tensile or compressive stress in the active area and in the channel.

21. The method of Claim 17, wherein the shape of the first deformation is selected to produce selected additional widthwise compressive stress in the active area and in the channel.

22. The method of Claim 17, wherein the first deformation is a depression in the one side of the active area and the additional lengthwise stress is tensile.

23. The method of Claim 17, wherein the first deformation is an outward protrusion of the one side of the active area and the additional lengthwise stress is compressive.

24. The method of Claim 17, further comprising forming a second deformation in the other side of the active area to selectively further enhance or decrease the lengthwise stress in the channel by producing additional lengthwise tensile or compressive force in the active area.

25. The method of Claim 24, wherein both deformations are depressions in their respective sides and the additional lengthwise force in the channel is tensile.

26. The method of Claim 24, wherein both deformations are protrusions of their respective sides and the additional lengthwise force in the channel is compressive.

27. The method of Claim 17, further comprising forming a second deformation in the one side of the active area, the second deformation being spaced lengthwise from the first deformation, to selectively further enhance the lengthwise tensile or compressive force in the channel by selectively producing additional lengthwise tensile or compressive force in the active area.

28. The method of Claim 27, wherein the first and second deformations are depressions in the one side of the active area and delineate therebetween a third deformation that is a protrusion of the one side of the active area, the first and second deformations producing additional tensile force lengthwise of the channel, the third deformation producing additional compressive force lengthwise of the channel, and all of the deformations producing additional compressive force widthwise of the channel.

29. The method of Claim 27, wherein the first and second deformations are protrusions of the one side of the active area and delineate therebetween a third deformation that is a depression in the one side of the active area, the first and second deformations producing additional compressive force lengthwise of the channel, the third deformation producing additional tensile force lengthwise of the channel, and all of the deformations producing additional compressive force widthwise of the channel.

30. The method of Claim 27, further comprising forming in the other side of the active area third and fourth deformations that are spaced apart lengthwise of the channel to selectively produce additional tensile or compressive force lengthwise of the channel and to produce additional compressive force widthwise of the channel.

31. The method of Claim 30, further comprising selecting the spacing between the first and second deformations and the spacing between the third and fourth deformations and selecting the positions of the first and second deformations relative to the positions of the third and fourth deformations lengthwise of the channel to produce selected stress in one or more selected locations of the channel.

32. A method of selectively enhancing or reducing carrier mobility in each of several zones of a channel disposed in an active area of a strained channel semiconductor device fabricated in and on a generally planar semiconductor segment, the method comprising:

forming the active area having a length delineated by two opposed termini and a width delineated by two opposed sides;

forming the channel in the active area between the sides thereof, wherein the active area and the channel comprise a residual lengthwise stress, wherein the zones lie lengthwise of the channel between the sides; and

forming one or more deformations in one or more of the sides of the active area to selectively enhance or reduce the lengthwise stress in selected zones of the channel by producing additional lengthwise tensile or compressive force in the respective zones.